BATTERY OPTIMIZER FOR ANDROID DEVICE

NOOR SUZIEANA BINTI SUHAIMI

BACHELOR OF COMPUTER SCIENCE

UNIVERSITI MALAYSIA PAHANG

SUPERVISOR'S DECLARATION

I hereby declare that I have checked this thesis and, in my opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Bachelor of Computer Science in Computer System and Networking.

_____

(Supervisor's Signature)

Full Name : DR RAMDAN BIN RAZALI

Date :

STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at University Malaysia Pahang or any other institutions.

_____

(Student's Signature)

Full Name : NOOR SUZIEANA BINTI SUHAIMI

ID Number : CA15041

Date :

BATTERY OPTIMIZER FOR ANDROID DEVICE

NOOR SUZIEANA BINTI SUHAIMI

Thesis submitted in fulfillment of the requirements
for the award of the degree of
Bachelor of Computer Science (Computer System and Networking)

Faculty of Computer System & Software Engineering

UNIVERSITI MALAYSIA PAHANG

JANUARY 2019

ACKNOWLEDGEMENTS

First and foremost, I would like to express my sincere thanks to the Almighty ALLAH for the gift he had given to me, the give of life, understanding, wisdom and blessing to successfully accomplish my final year project. Without His grant, my project will not be completed as right now.

I am very grateful to my FYP supervisor, Dr. Ramdan bin Razali, for his extraordinary effort to give me the necessary guidance and always motivate me in order to complete this project

I also thank to Dr Mohd Arfian Bin Ismail, coordinator FYP of Fakulti Sistem Komputer dan Kejuruteraan Perisian (FSKKP), Universiti Malaysia Pahang (UMP) for providing all documents related to our FYP course and scheduled our tasks.

Finally, I would like to thank my family and friends for being on my side all the good and tough times and, thanks to individuals who directly or indirectly support their assistance in this project.

Thank you to all of them, may Allah bless you all.

ABSTRAK

Bateri Pintar adalah aplikasi mudah alih yang akan membantu mengoptimumkan penggunaan bateri. Aplikasi ini dilaksanakan fokus untuk pengguna peranti android sahaja. Masalah yang dihadapi oleh sesetengah pengguna adalah mereka kehabisan bateri telefon tetapi tiada sumber boleh mengecas semula bateri. Tidak semua orang mempunyai bank kuasa dan kadang-kadang mereka mungkin lupa untuk membawanya. Penyelesaian untuk menyelesaikan masalah ini adalah dengan mencadangkan aplikasi mudah alih yang dikenali sebagai Bateri Pintar yang boleh membantu mengoptimumkan penggunaan bateri walaupun meminimumkannya. Di halaman utama aplikasi, ia akan memaparkan kesihatan dan tahap bateri kesihatan. Dalam aplikasi ini terdapat tiga fungsi utama iaitu bateri sejuk, pengecas dan pemasa mod. Bateri Pintar akan bijak mengendalikan sistem dalaman peranti android untuk butiran bateri. dalam halaman Baterai Cool ia akan memaparkan suhu bateri. Berdasarkan penyelidikan yang dilakukan, hasil terbaik untuk mengecas bateri adalah antara 10 * c dan 30 * c. Seterusnya, halaman Pengecas menunjukkan status bateri dan paras bateri. Untuk status bateri, sama ada dalam proses pengecasan, tidak mengenakan bayaran atau sepenuhnya. Dan akhirnya di halaman penjimatan lif terdiri daripada tiga subfungsi iaitu Mod Kecemasan, Mod Hidup Panjang dan Mod Malam. ketiga mod ini mempunyai fungsi yang sama di mana ia akan mematikan sambungan Wifi, mematikan kelantangan dan mematikan bluetooth, tetapi perbezaan antara ketiga-tiga mod adalah nilai kecerahan skrin dan nilai tamat masa scren. Untuk Mod Kecemasan, kecerahan skrin akan ditetapkan kepada 15% dan masa akhir skrin ditetapkan kepada 15minute. Malah untuk Skrin Kecerahan Skrin Panjang Langsung akan ditetapkan 30% lebih tinggi daripada mod Kecemasan dan tamat masa skrin ditetapkan kepada 30 minit. Untuk penyelamat mod lepas, Mod Malam, kecerahan skrin ditetapkan 25% dan 30 saat di hujung skrin. Secara alternatif, kecerahan skrin akan ditetapkan secara automatik apabila pengguna menolak butang dari fungsi mod menyelamatkan nyawa. Kesimpulannya, Smart Battery adalah sistem pengoptimum bateri mudah yang mengoptimumkan penggunaan bateri secara tidak langsung boleh membantu pengguna menyelesaikan masalah mereka

ABSTRACT

Smart Battery is a mobile app that will help optimize battery usage. This app is implemented focus for android device users only. The problem faced by some users is they have run out of the phone's battery but no source can recharge the batteries. Not everyone has a power bank and sometimes they may forget to bring it. The solution to solving this problem is by suggesting a mobile app known as Smart Battery (SB) that can help optimize battery usage even minimize it. In the app's main page, it will display health and battery level of health. In this app there are three main functions namely cool battery, charger and mod timer. Smart Battery will smartly handle the android device's internal system for battery details. in Cool Battery page it will display battery temperature. Based on the research done, the best result for charging the battery is between 10c and 30c. Next, the Charger page shows battery status and battery level. For battery status, either in the charging process, does not charge or fully charge. And finally, at the Mode Saver page consists of three subfunction namely Emergency Mode, Long Life Mode and Night Mode. These three modes have same function, where it will turn off Wi-Fi connection, turn off the volume and turn off Bluetooth, but the difference between these three modes is the screen brightness value and the screen timeout value. For Emergency Mode, the screen brightness will be set to 15% and the screen end time is set to 15minute. Even for the Long Live Screen Brightness Screen will be set 30% higher than the Emergency mode and screen timeout is set to 30 minutes. For last mod saver, Night Mode, screen brightness is set 25% and 30 seconds at the end of the screen. Alternatively, the screen brightness will be set to auto when the user pushes the button from the lifesaving mod function. In conclusion, Smart Battery is a simple battery optimizer system that optimizes battery usage can indirectly help users solve their problems

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

SB	Smart Battery

CHAPTER 1

INTRODUCTION

1.1 Introduction

Battery is a compulsory hardware in any mobile devices. It can be either removable or non-removable. Nowadays batteries are rechargeable to ensure the mobile devices can operate at any time if they have source power to recharge their devices. Current technology in mobile device's battery use Lithium-ion or Li-ion. These technology for sure rechargeable and mostly use in smartphone and laptop. Charging and discharging of the battery is a chemical reaction as the ion from anode and cathode is exchanging. Even the battery is rechargeable, it also has its own life span. The power/performance of these battery will degrade alongside with the time of use. For example, two to three years or 300 to 500 of charge cycles is expected for a standard use.

Mobile devices like smartphone and tablets really in trend currently. Every person has either one or more of them. These devices can help a lot in completing our daily tasks. Unfortunately, without sufficient battery, it cannot help their user and become useless. These devices running by Operating System (OS) and most of them is running by Android. Besides them, iPhone OS (iOS) also a big company that evenly match the Android. Most of smartphone's user, faced problem with out of battery at a wrong time and wrong place several times. Therefore, the users' need to overcome this problem with some ideas and actions.

For the suggestion, a battery optimizer that can help user to optimize battery consumption that will reduce this problem to a certain point. Therefore, here a proposed an application for mobile application named Smart Battery (SB) which can optimize the battery usage of a device. SB has several functions which are Battery Cooler, Charger and Mode Saver. These functions can help the user in managing their battery

performance, consumption and even details. Smart Battery will extend battery life and optimize battery usage. It will save battery by dealing with phone's network connectivity, screen time out and screen brightness. SB also will let user customize their own power mode to save more power in a long time period.

In a conclusion, Smart Battery can help their user in optimizing the battery consumption. So that, the user can plan well to manage their device's battery and no more out of battery at a wrong time and wrong place.

1.2 Problem Statement

Smart Battery is a mobile application that will be developed to help user extend their phone battery life by optimizing the battery.

i. Run out of battery in wrong place and time

ii. Android device users use more battery consumption

iii. The battery uses a lot of energy to work on and response to it

1.3 Objective

The objective of this project is to develop a mobile application that can optimize usage of battery for android device.

i. To minimize battery consumption

ii. To avoid more work load when there is no battery

iii. To propose mobile application to optimize and help user to manage the battery

1.4 Scope

The developed project will only focus on android device user.

1.5 Thesis Organization

There are four chapter will include in this thesis. Chapter 1 will be discussing on the introduction to the project. In this introduction chapter, it contains brief information

of the system, problem statement, objective and scope of the project. Meanwhile, in chapter 2 will contain the literature review which it's has information about the study of the project in general. It also consists of comparison of three different existing systems. while in chapter 3, it will discuss the overall approach and framework of the system. The chapter 4, is the part of conclusion that will conclude all the project.